

Chemistry 333

Examination #2

June 23, 2008

Professor Charonnat

Name: _____

Be certain that your examination has six (6) pages including this one.

Put your name on **each** page of this examination booklet.

By putting your name on this examination booklet you agree to abide by California State University, Northridge policies of academic honesty and integrity.

Molecular models are allowed for this examination. All electronic devices, including calculators, are unnecessary and are not allowed.

Name: _____

1. (25 points)

Draw the specific reagent(s) necessary to effect the following five (5) transformations.

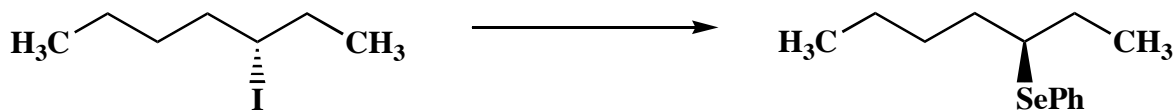
A.



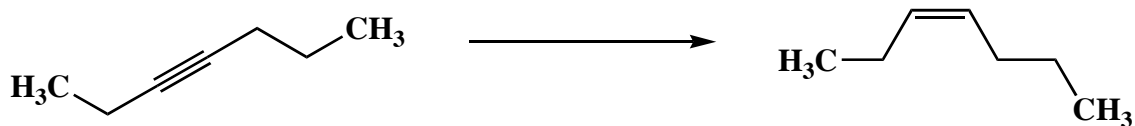
B.



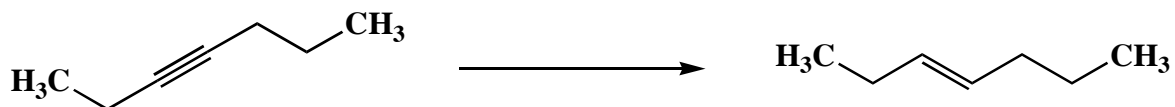
C.



D.



E.



Name: _____

2. (30 points)

Circle the number that corresponds to the correct answer for each of the following six (6) questions.

A. Which reagent system contains the most nucleophilic anion?

1. potassium fluoride in ethanol
2. potassium fluoride and 18-crown-6 in benzene
3. potassium fluoride and 18-crown-6 in ethanol

B. Which of the following compounds is the most stable alkene?

1. 1-methylcyclohexene
2. 3-methylcyclohexene
3. 4-methylcyclohexene

C. Which reaction typically involves a transition state with an *anti* conformation?

1. E1
2. E1cB
3. E2

D. E1cB reactions proceed via

1. radical intermediates
2. carbanion intermediates
3. carbocation intermediates

E. The nonphotochemical addition of molecular bromine to *trans*-hex-3-ene affords a product that

1. has 100% e.e.
2. has 50% e.e.
3. is achiral

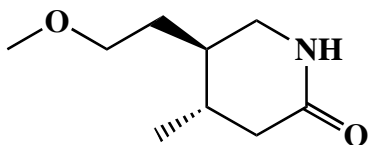
F. In an E1 reaction

1. a weak base is involved after the rate-determining step
2. a weak base is involved in the rate-determining step
3. a strong base is involved in the rate-determining step

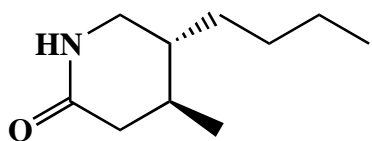
Name: _____

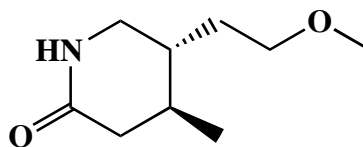
3. (30 points)

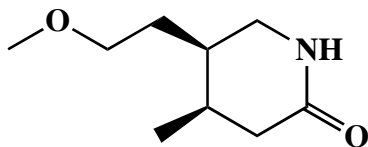
State the relationship between each of the six (6) structures at the bottom of this page and the lactam **1** (identical, enantiomer, diastereomer, structural isomer, conformational isomer, different compound that is not isomeric).

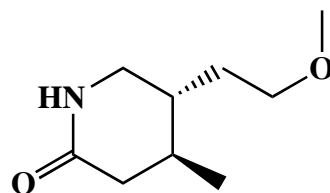


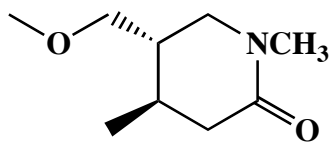
1

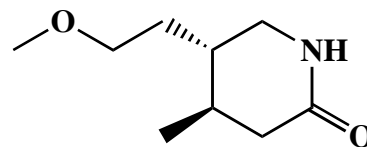












Name: _____

4. (15 points)

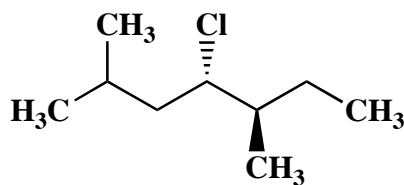
Define the term, "stereocenter." Draw specific structures for two compounds, one that possesses a stereocenter that also is a chiral carbon, the other that possesses a stereocenter that is not a chiral carbon.

5. (10 points)

Define the term, "partially diastereoselective reaction." Draw a specific example of such a reaction.

6. (10 point)

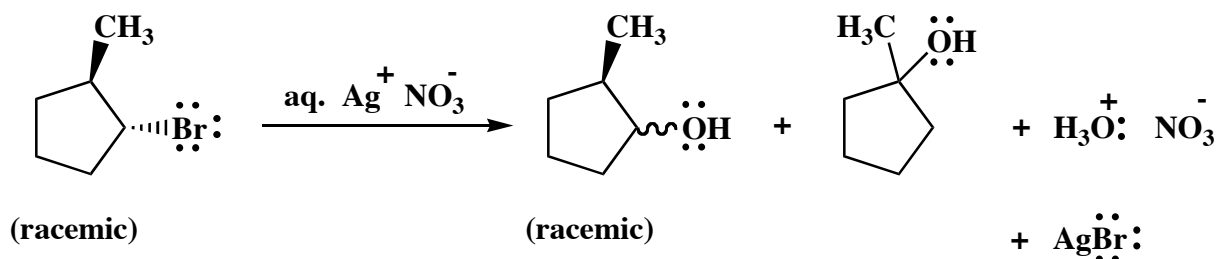
Use IUPAC nomenclature to write the systematic name of the following alkyl halide.



Name: _____

7. (30 points)

Draw the mechanism of the following unbalanced reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility. Show clearly how all the products are formed.



Congratulations!

1	/25
2	/30
3	/30
4	/15
5	/10
6	/10
7	/30
Total:	/150